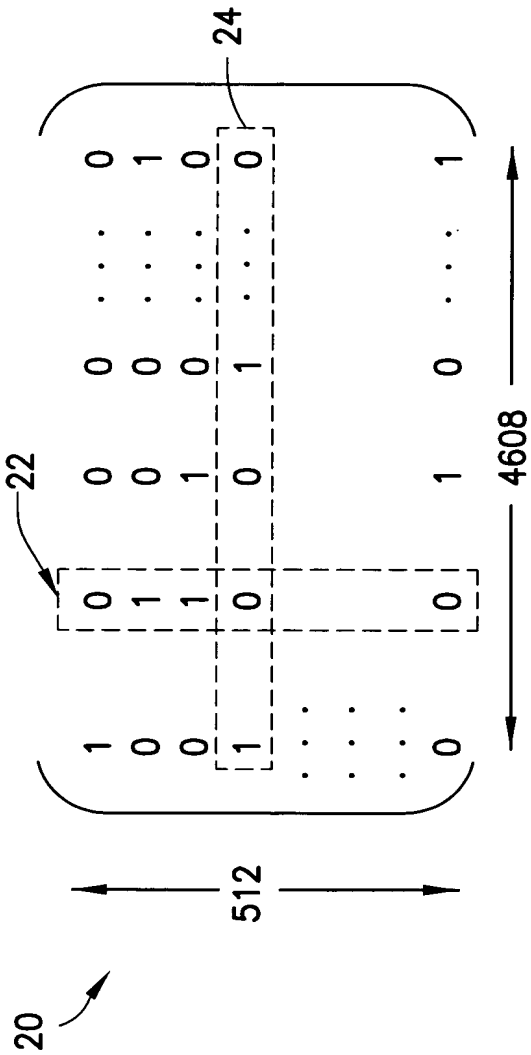

FIG. 1A
PRIOR ART

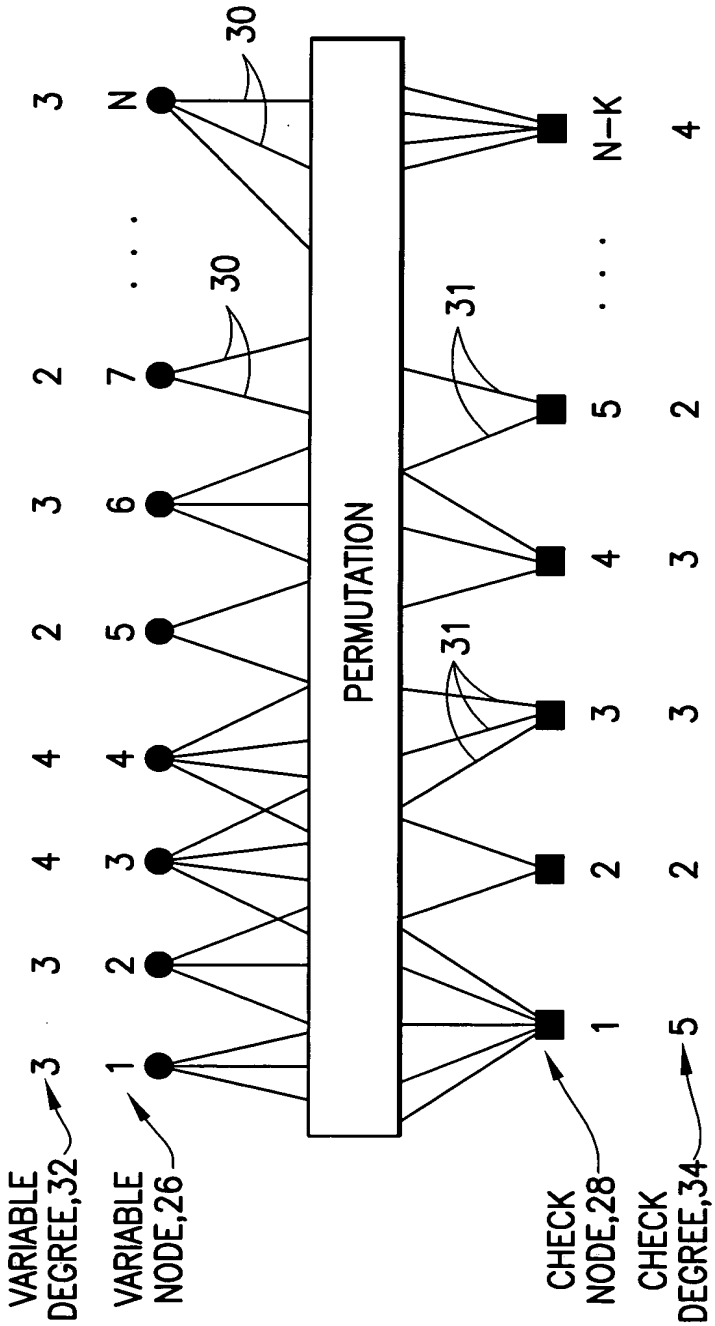

FIG. 1B
PRIOR ART

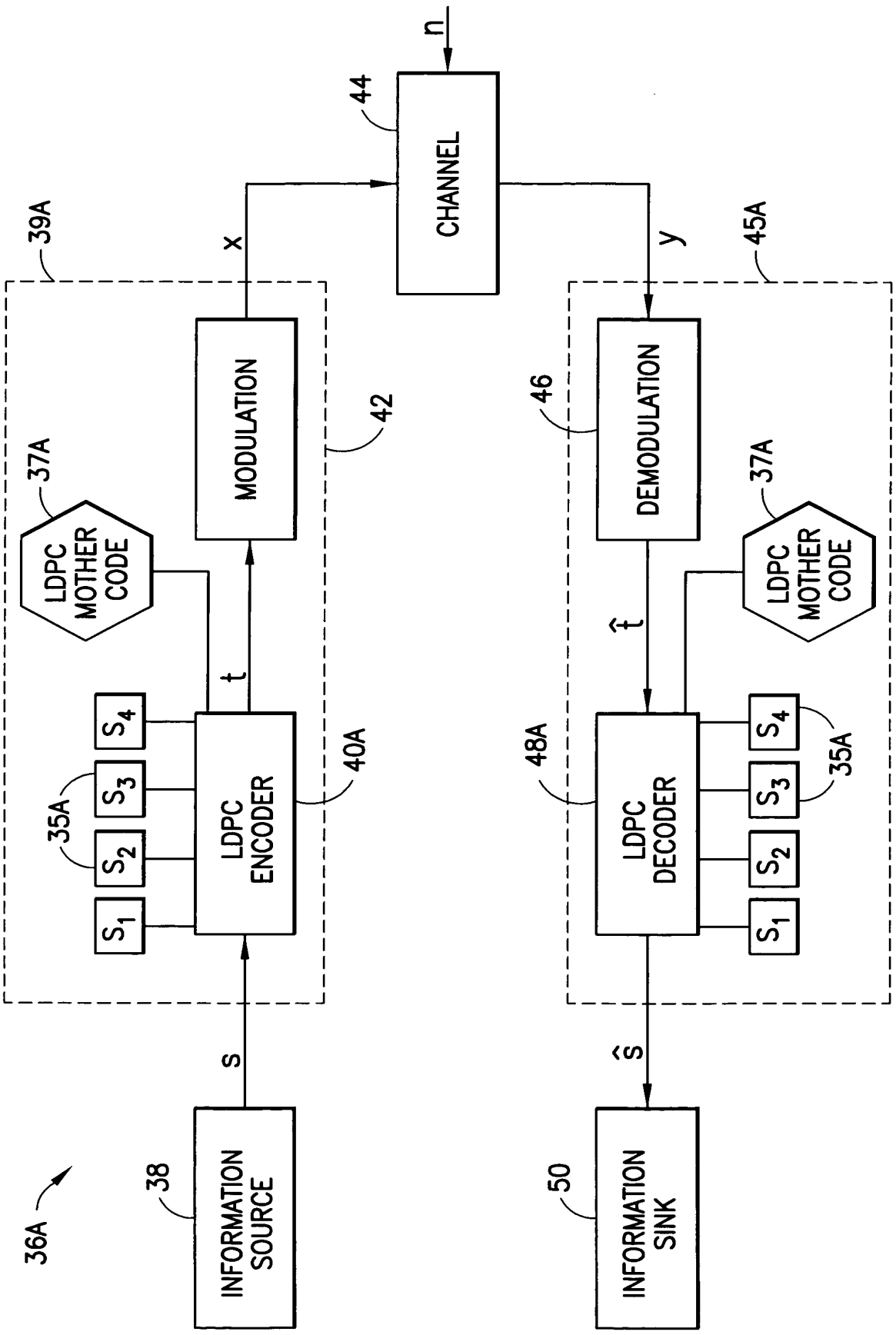

FIG.2A
PRIOR ART

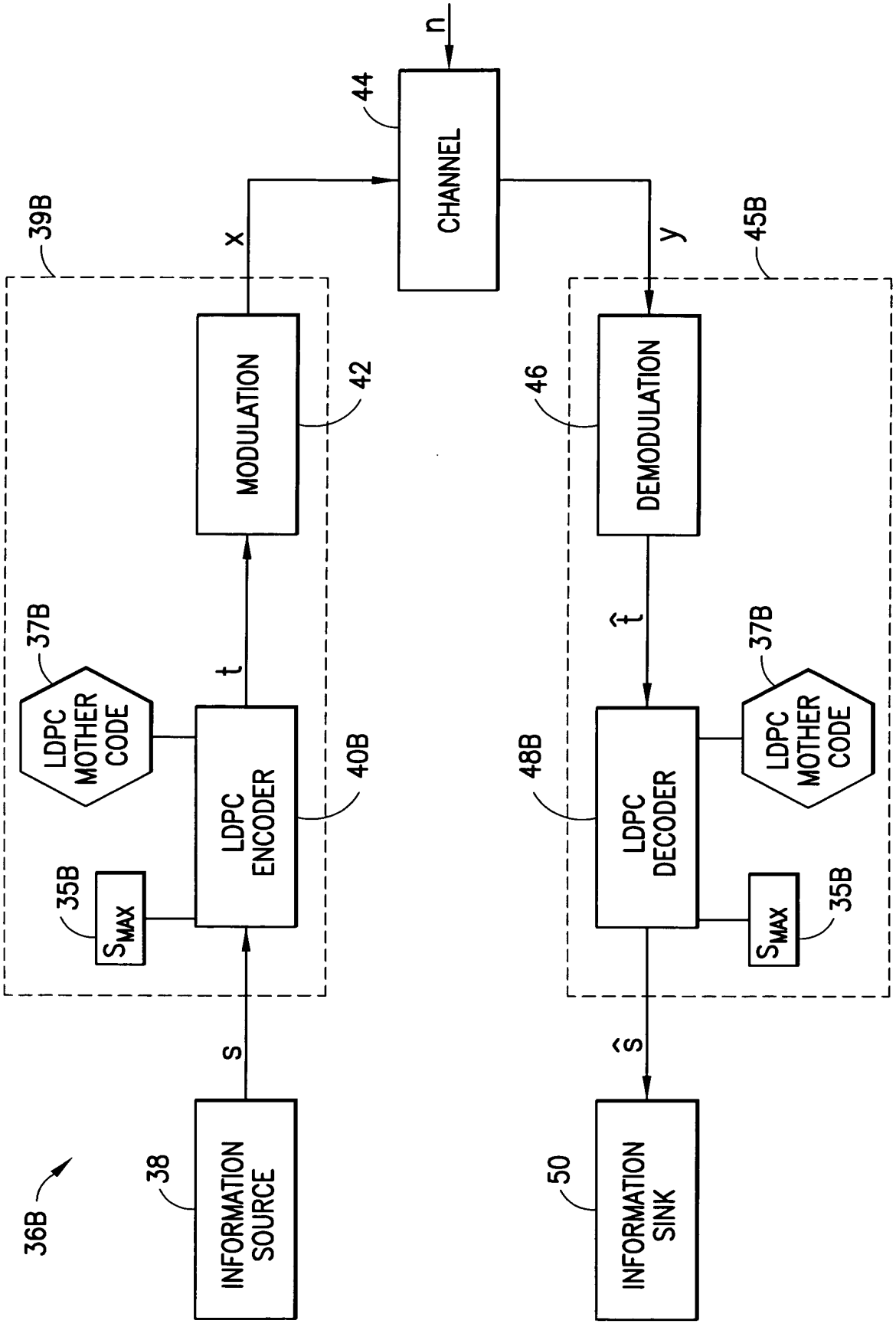
36B
38
INFORMATION SOURCE
s
39B
35B
S_{MAX}
37B
LDPC MOTHER CODE
LDPC ENCODER
40B
t
MODULATION
42
x
n
44
CHANNEL
y
45B
46
DEMODULATION
$\hat{t}$
48B
LDPC DECODER
37B
LDPC MOTHER CODE
35B
S_{MAX}
$\hat{s}$
50
INFORMATION SINK

FIG.2B

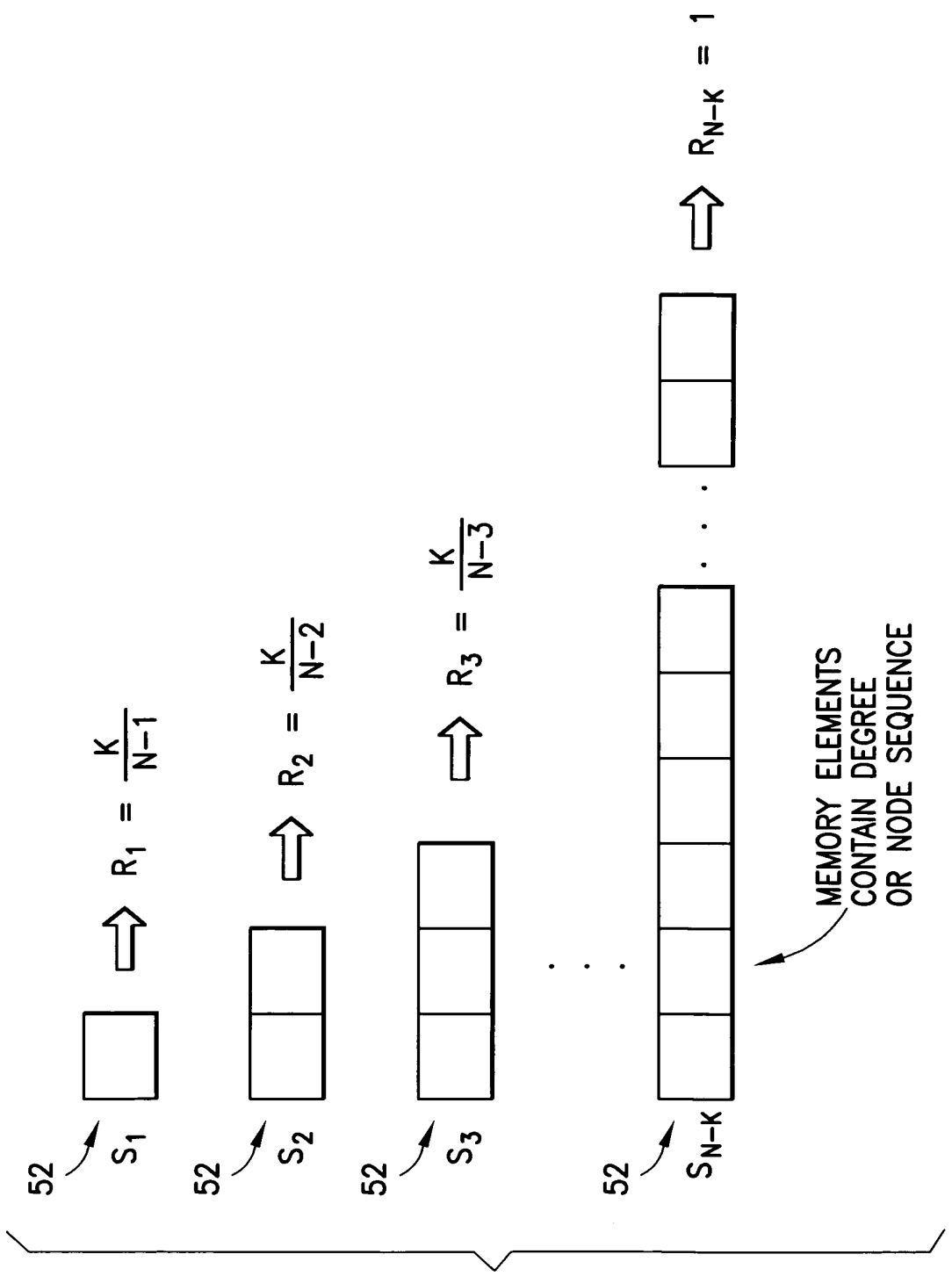

FIG.3
PRIOR ART

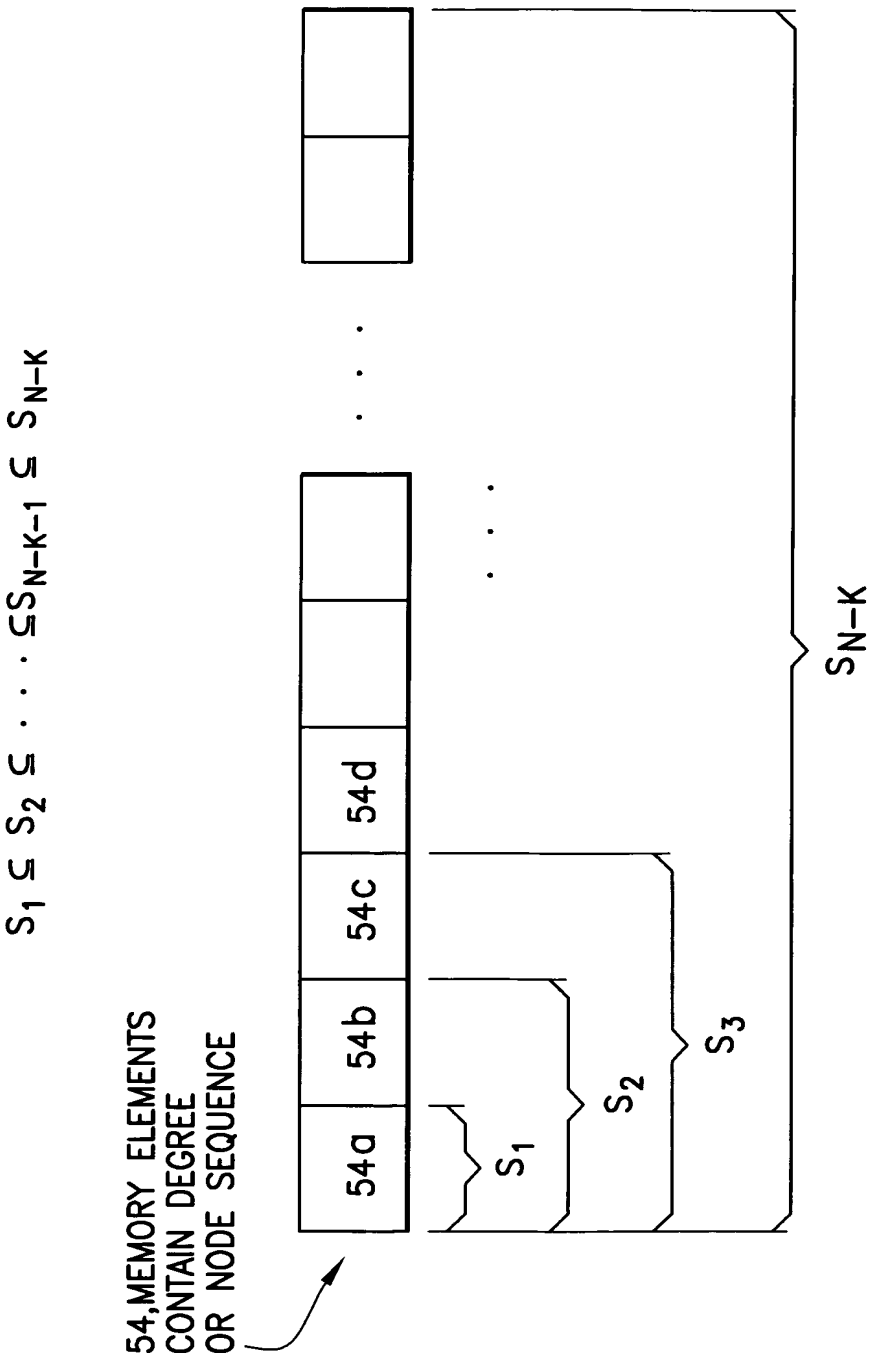
$S_1 \subseteq S_2 \subseteq \cdots \subseteq S_{N-K-1} \subseteq S_{N-K}$
54,MEMORY ELEMENTS
CONTAIN DEGREE
OR NODE SEQUENCE
54a
54b
54c
54d
S_1
S_2
S_3
S_{N-K}

FIG.4

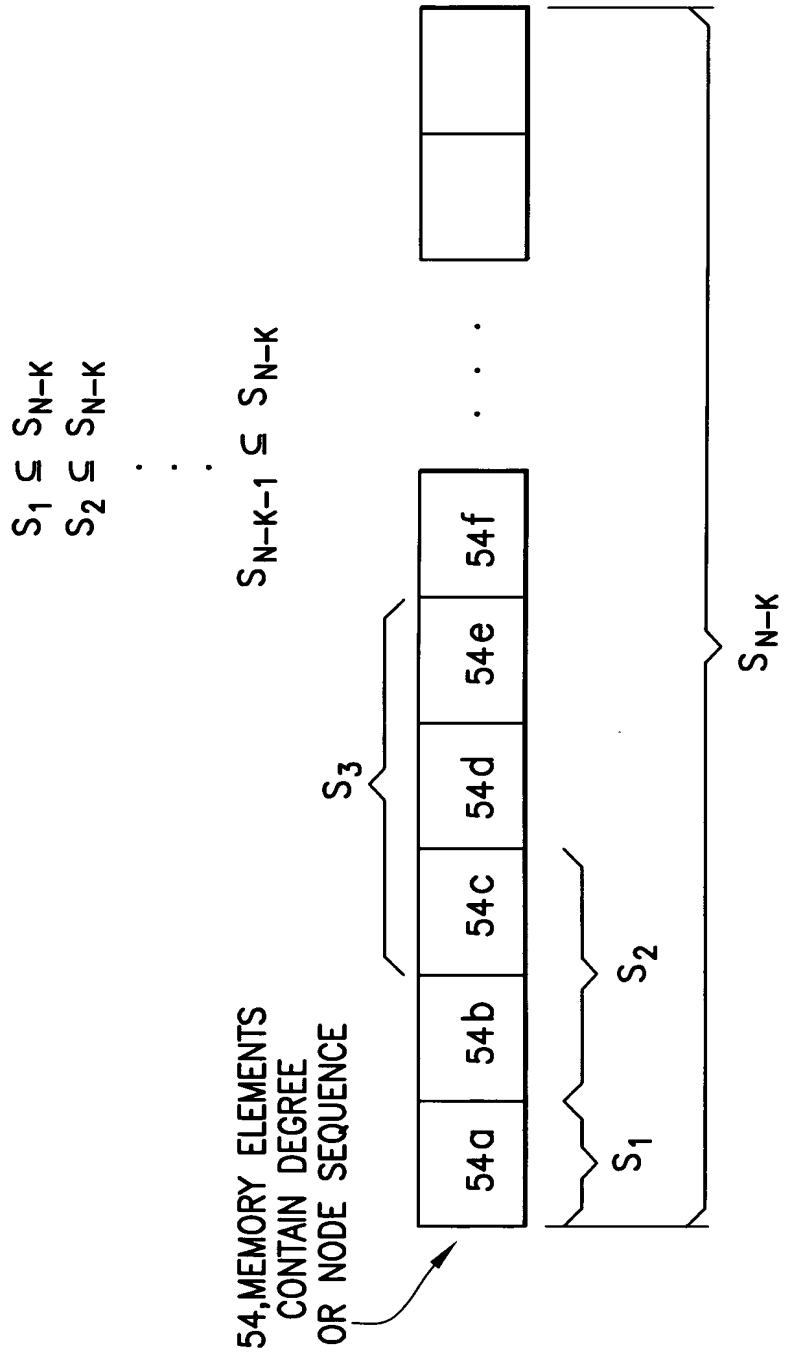
$S_1 \subseteq S_{N-K}$
$S_2 \subseteq S_{N-K}$
$S_{N-K-1} \subseteq S_{N-K}$
54,MEMORY ELEMENTS CONTAIN DEGREE OR NODE SEQUENCE
54a
54b
54c
54d
54e
54f
S_1
S_2
S_3
S_{N-K}

FIG.5

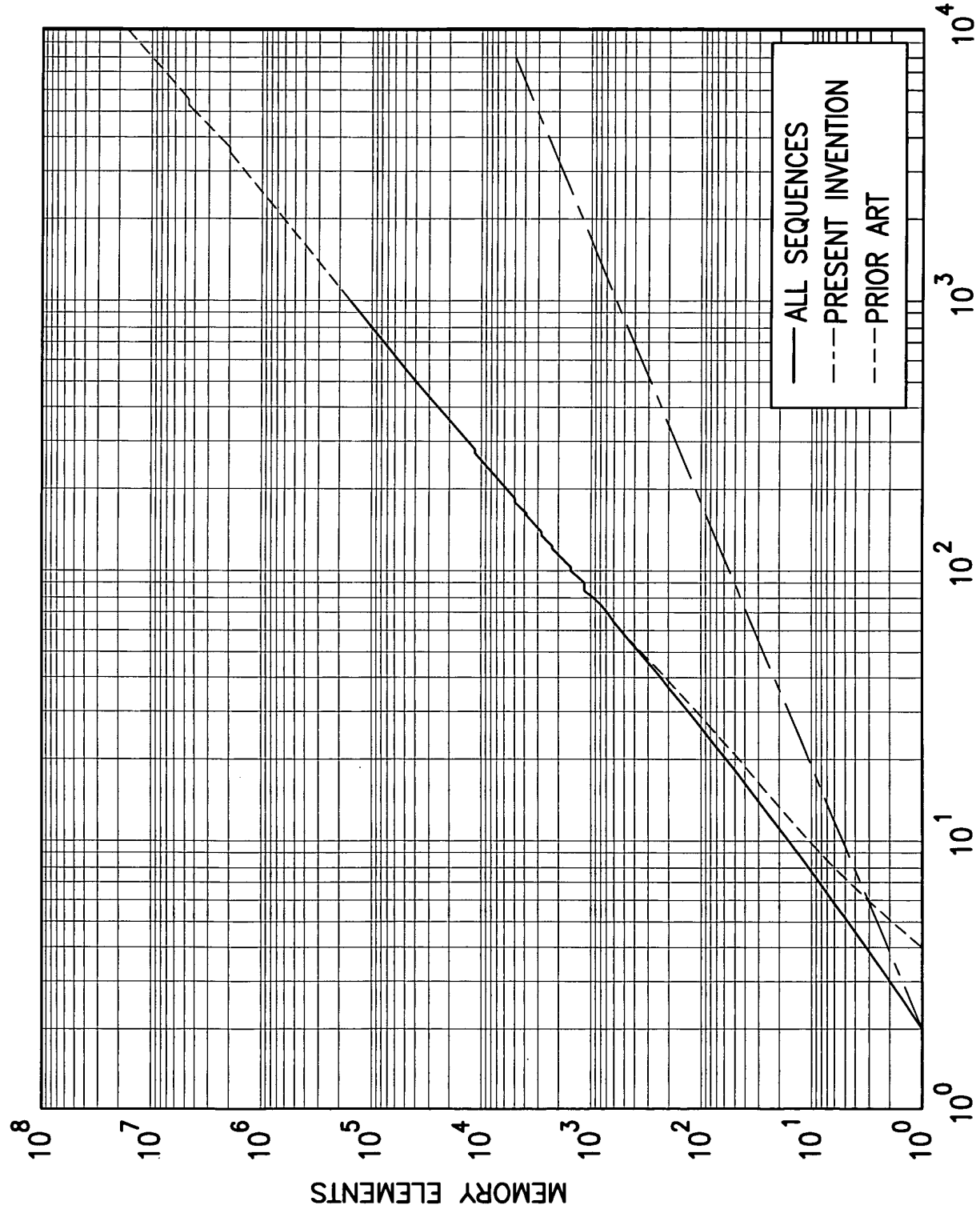
MEMORY ELEMENTS
CODEWORD LENGTH
ALL SEQUENCES
PRESENT INVENTION
PRIOR ART
10^0
10^1
10^2
10^3
10^4
10^5
10^6
10^7
10^8

FIG.6

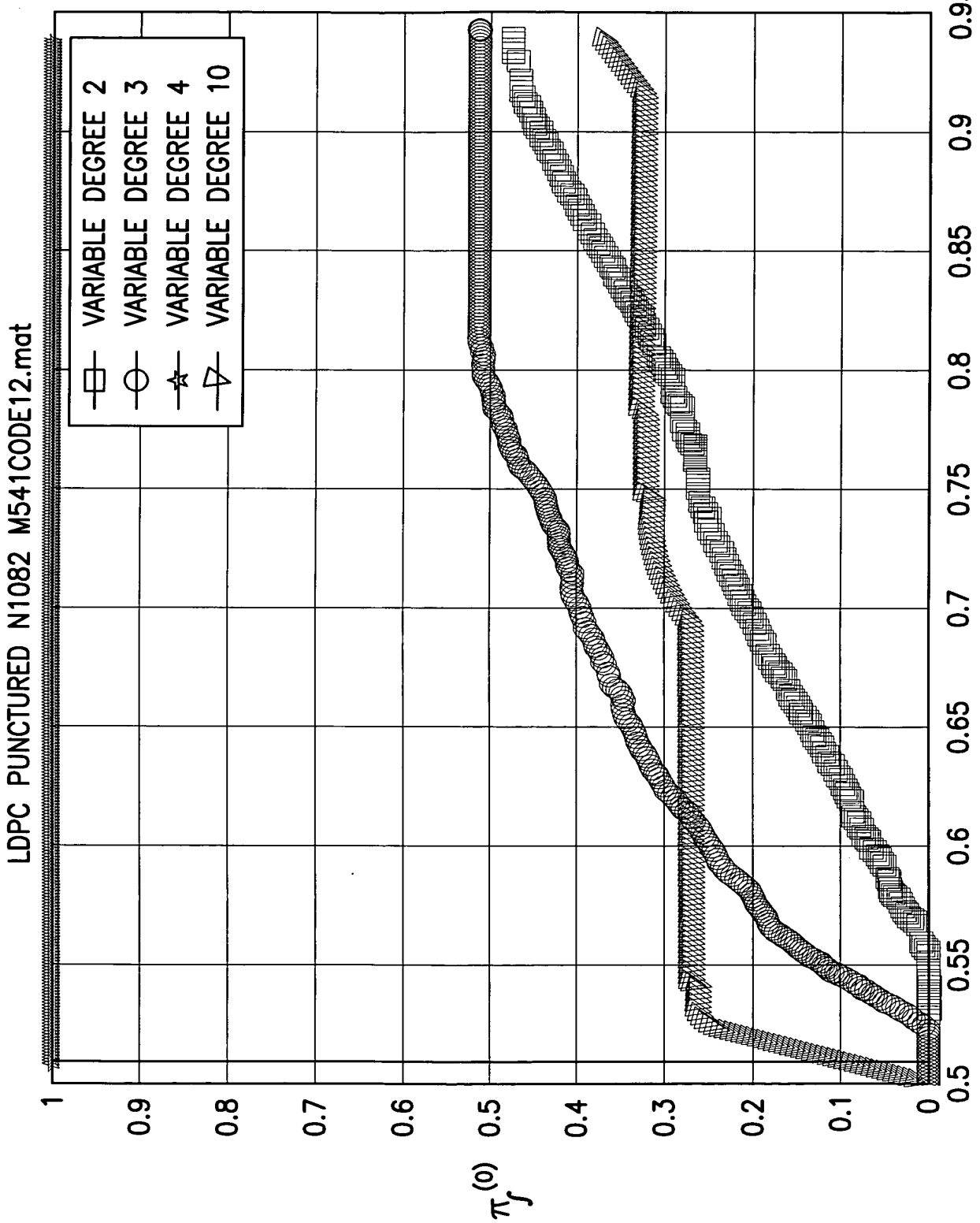
LDPC PUNCTURED N1082 M541CODE12.mat
VARIABLE DEGREE 2
VARIABLE DEGREE 3
VARIABLE DEGREE 4
VARIABLE DEGREE 10
$\pi_j^{(0)}$
EFFECTIVE CODERATE
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.7

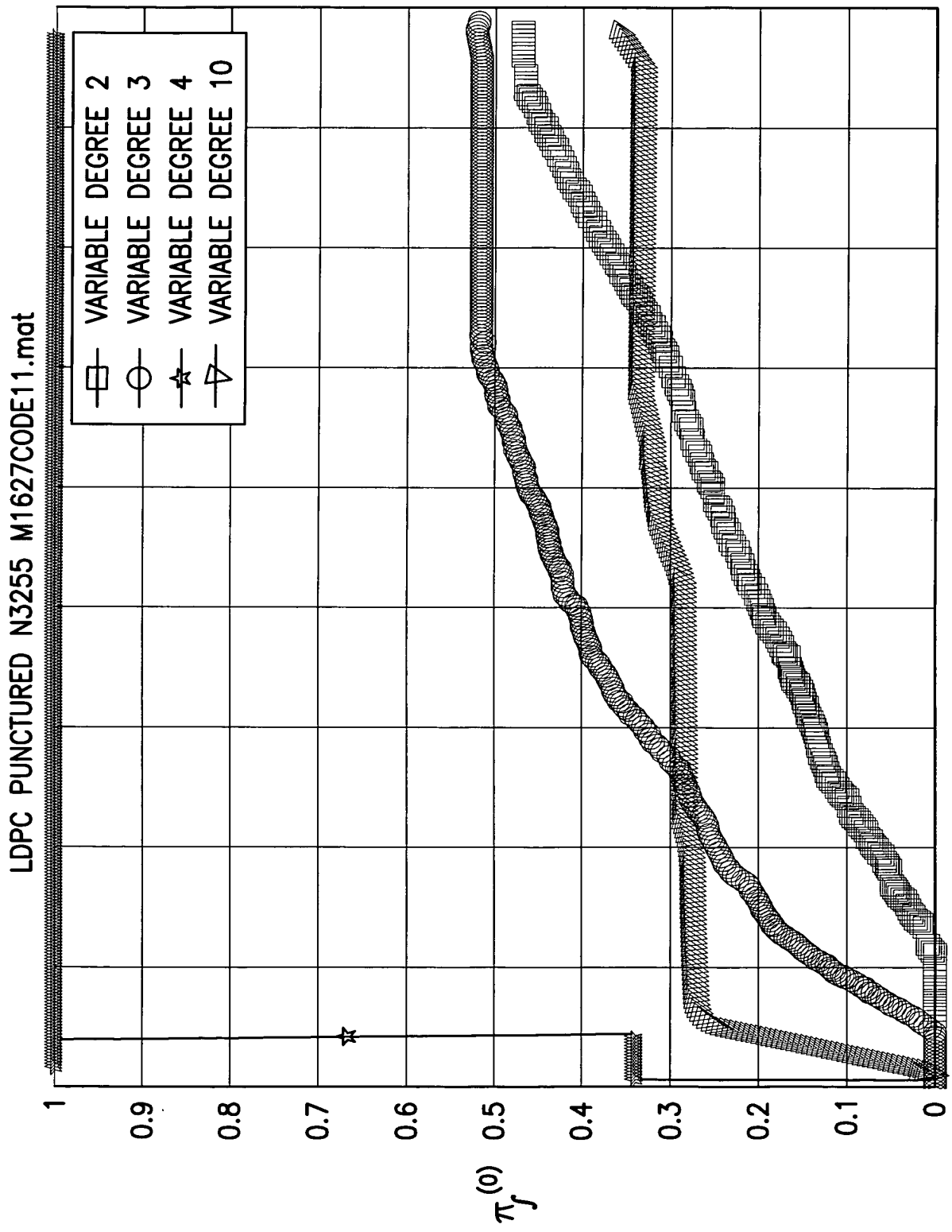
LDPC PUNCTURED N3255 M1627CODE11.mat
VARIABLE DEGREE 2
VARIABLE DEGREE 3
VARIABLE DEGREE 4
VARIABLE DEGREE 10
$\pi_j^{(0)}$
EFFECTIVE CODERATE
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.8

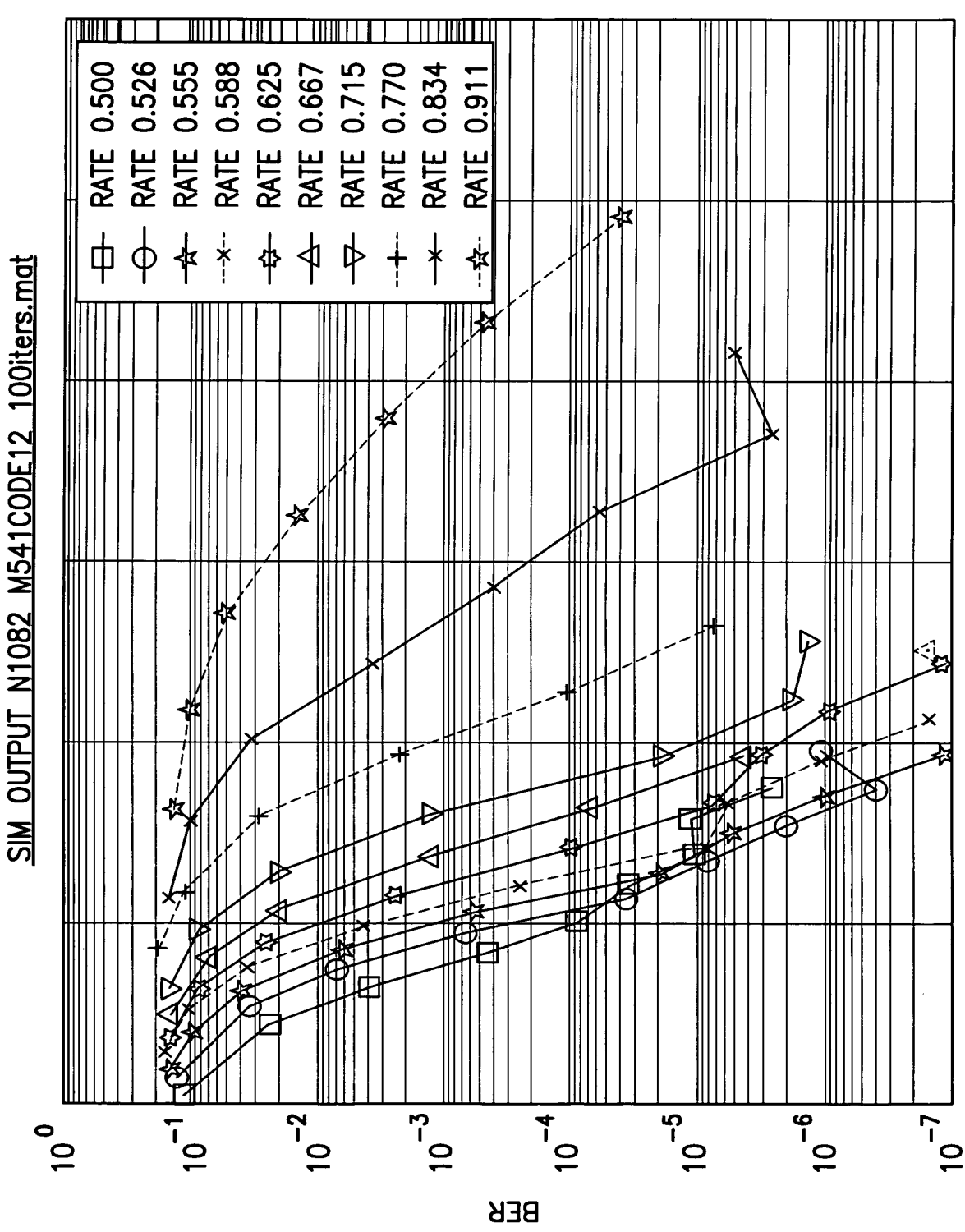
SIM_OUTPUT_N1082_M541CODE12_100iters.mat
RATE 0.500
RATE 0.526
RATE 0.555
RATE 0.588
RATE 0.625
RATE 0.667
RATE 0.715
RATE 0.770
RATE 0.834
RATE 0.911
BER
Eb/No dB
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
0
2
4
6
8
10
12

FIG.9

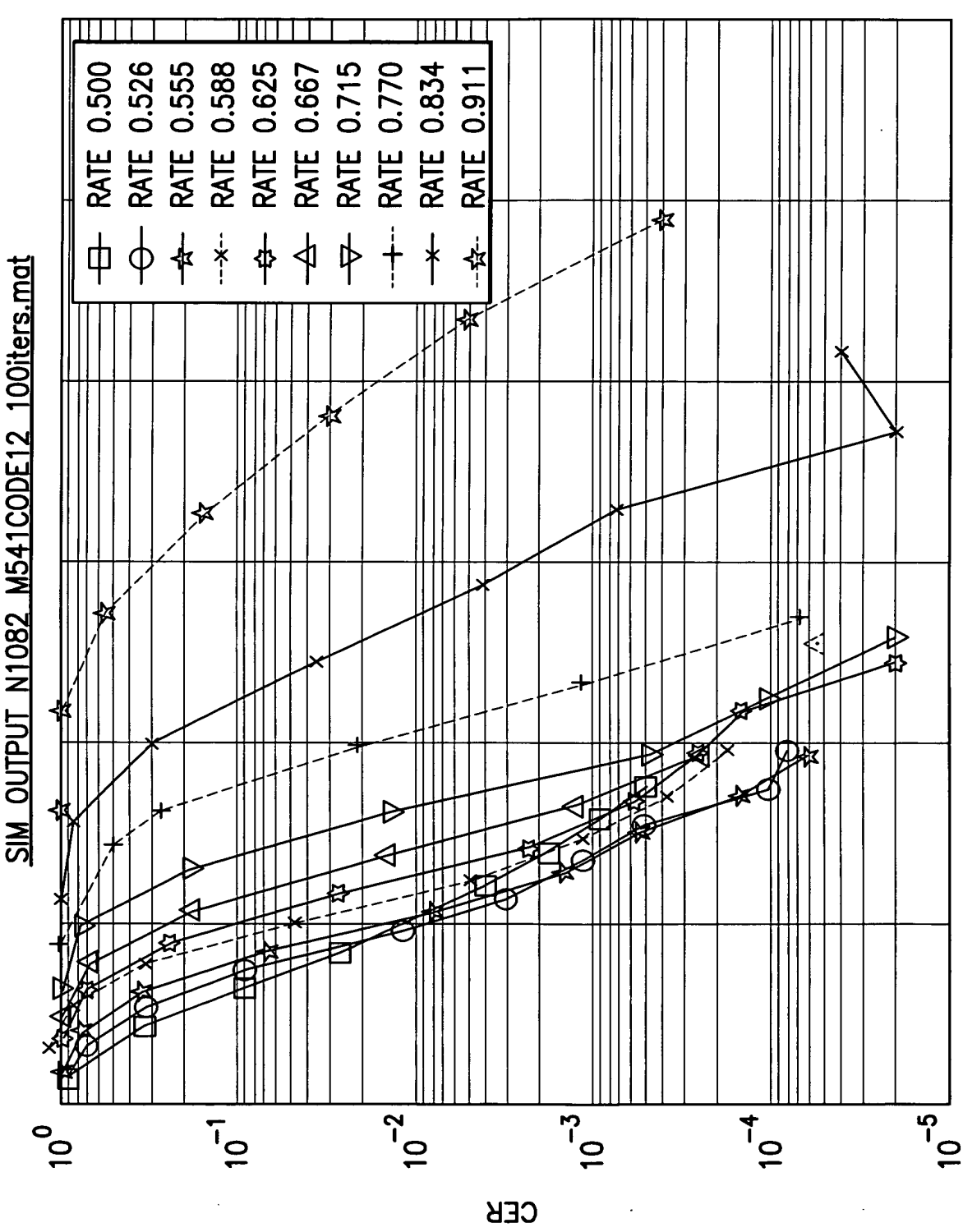
SIM_OUTPUT_N1082_M541CODE12_100iters.mat
RATE 0.500
RATE 0.526
RATE 0.555
RATE 0.588
RATE 0.625
RATE 0.667
RATE 0.715
RATE 0.770
RATE 0.834
RATE 0.911
CER
Eb/No dB
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
2
4
6
8
10
12

FIG.10

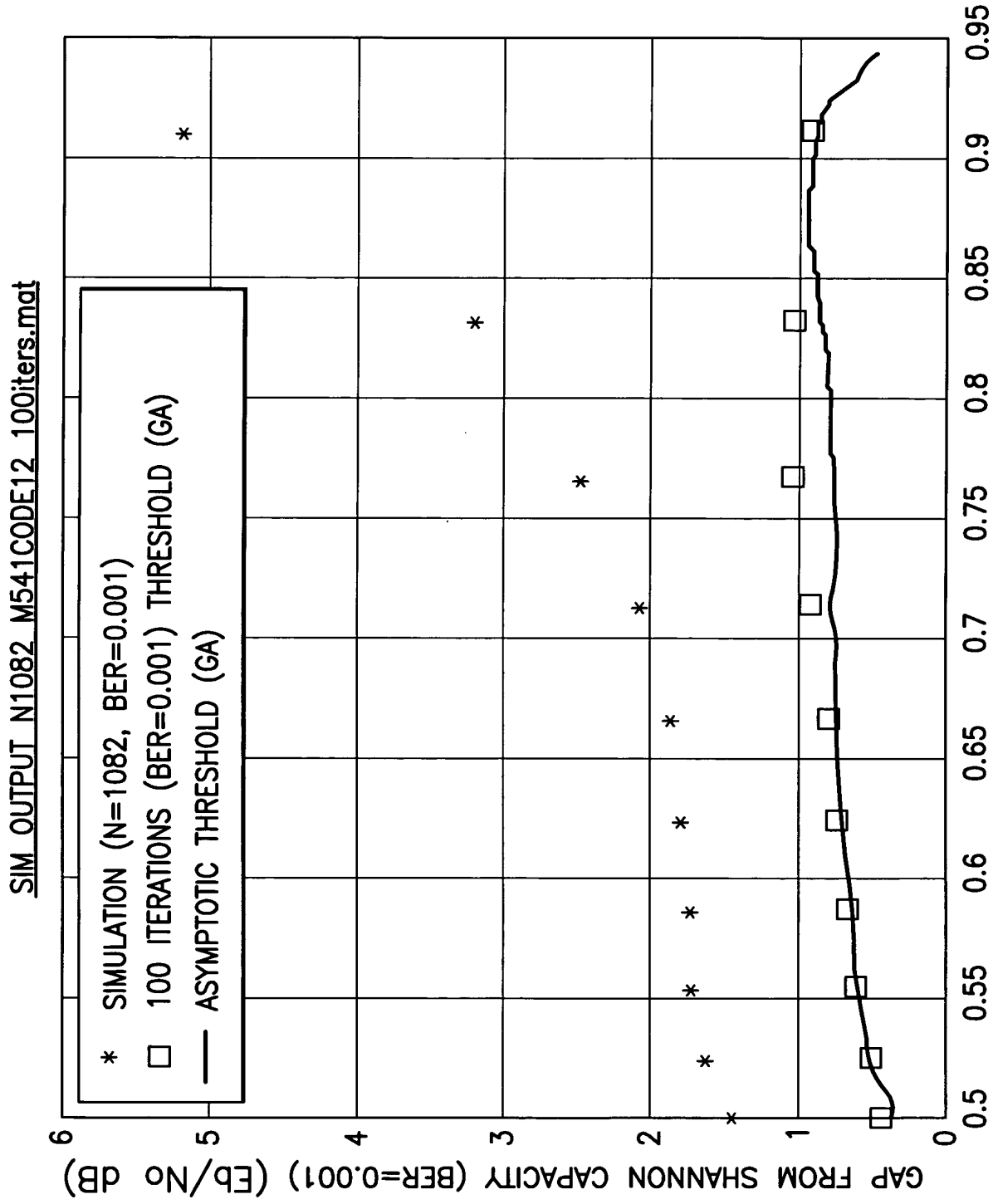
SIM_OUTPUT_N1082_M541CODE12_100iters.mat
SIMULATION (N=1082, BER=0.001)
100 ITERATIONS (BER=0.001) THRESHOLD (GA)
ASYMPTOTIC THRESHOLD (GA)
GAP FROM SHANNON CAPACITY (BER=0.001) (Eb/No dB)
EFFECTIVE CODERATE
0
1
2
3
4
5
6
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.11

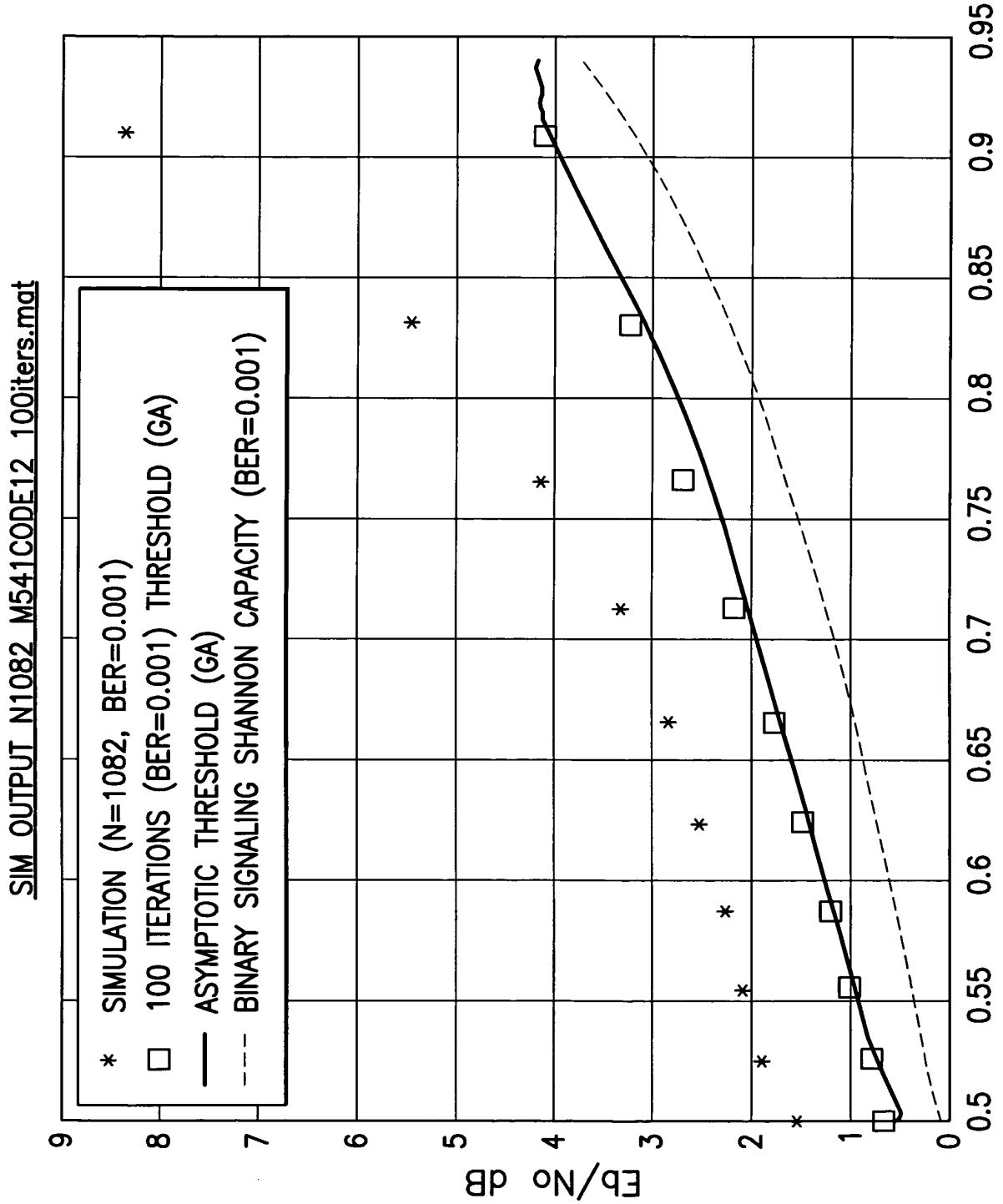
SIM_OUTPUT_N1082_M541CODE12_100iters.mat
SIMULATION (N=1082, BER=0.001)
100 ITERATIONS (BER=0.001) THRESHOLD (GA)
ASYMPTOTIC THRESHOLD (GA)
BINARY SIGNALING SHANNON CAPACITY (BER=0.001)
Eb/No dB
EFFECTIVE CODERATE
0
1
2
3
4
5
6
7
8
9
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.12

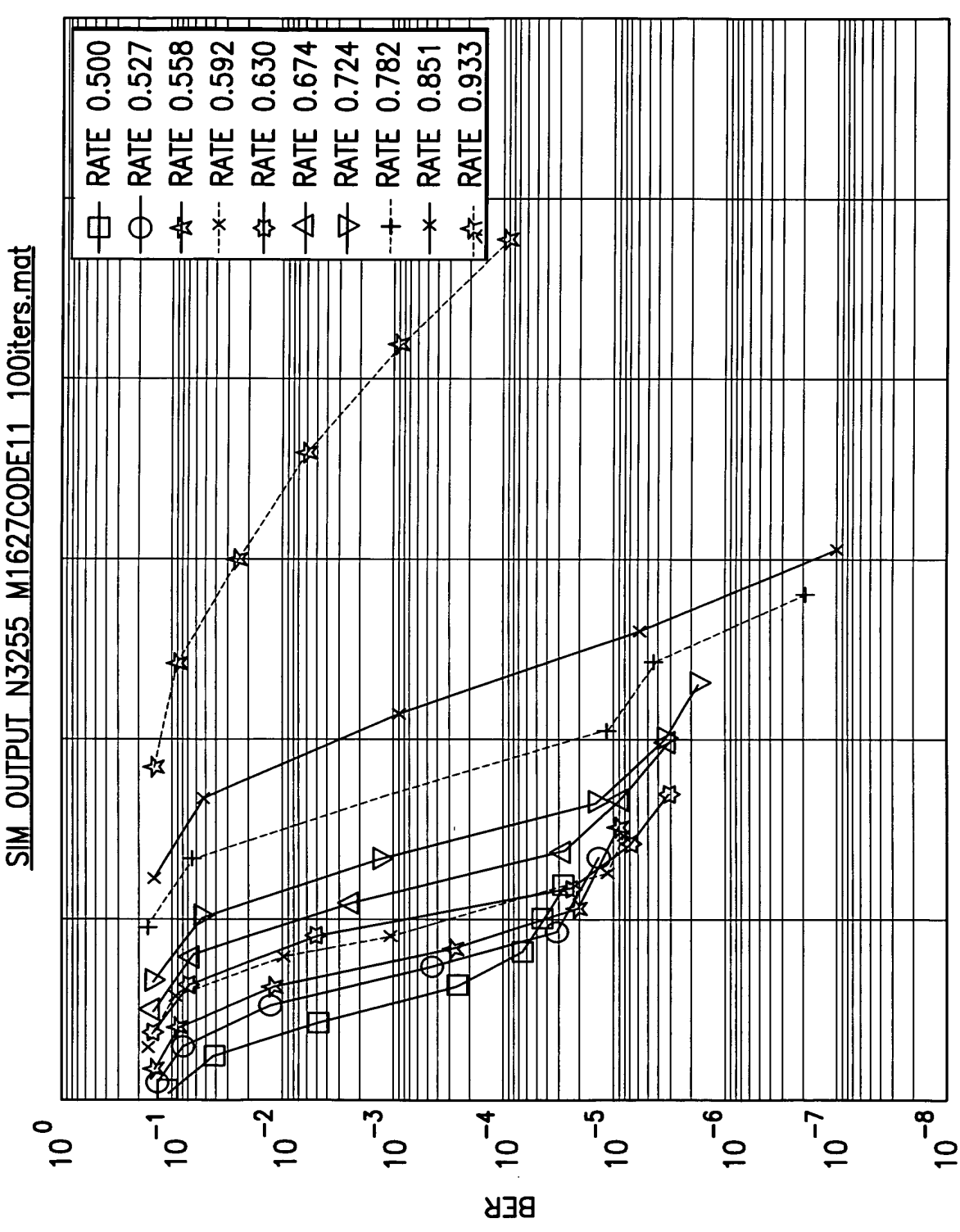
SIM_OUTPUT_N3255_M1627CODE11_100iters.mat
RATE 0.500
RATE 0.527
RATE 0.558
RATE 0.592
RATE 0.630
RATE 0.674
RATE 0.724
RATE 0.782
RATE 0.851
RATE 0.933
BER
Eb/No dB
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-7
10^-8
0
2
4
6
8
10
12

FIG.13

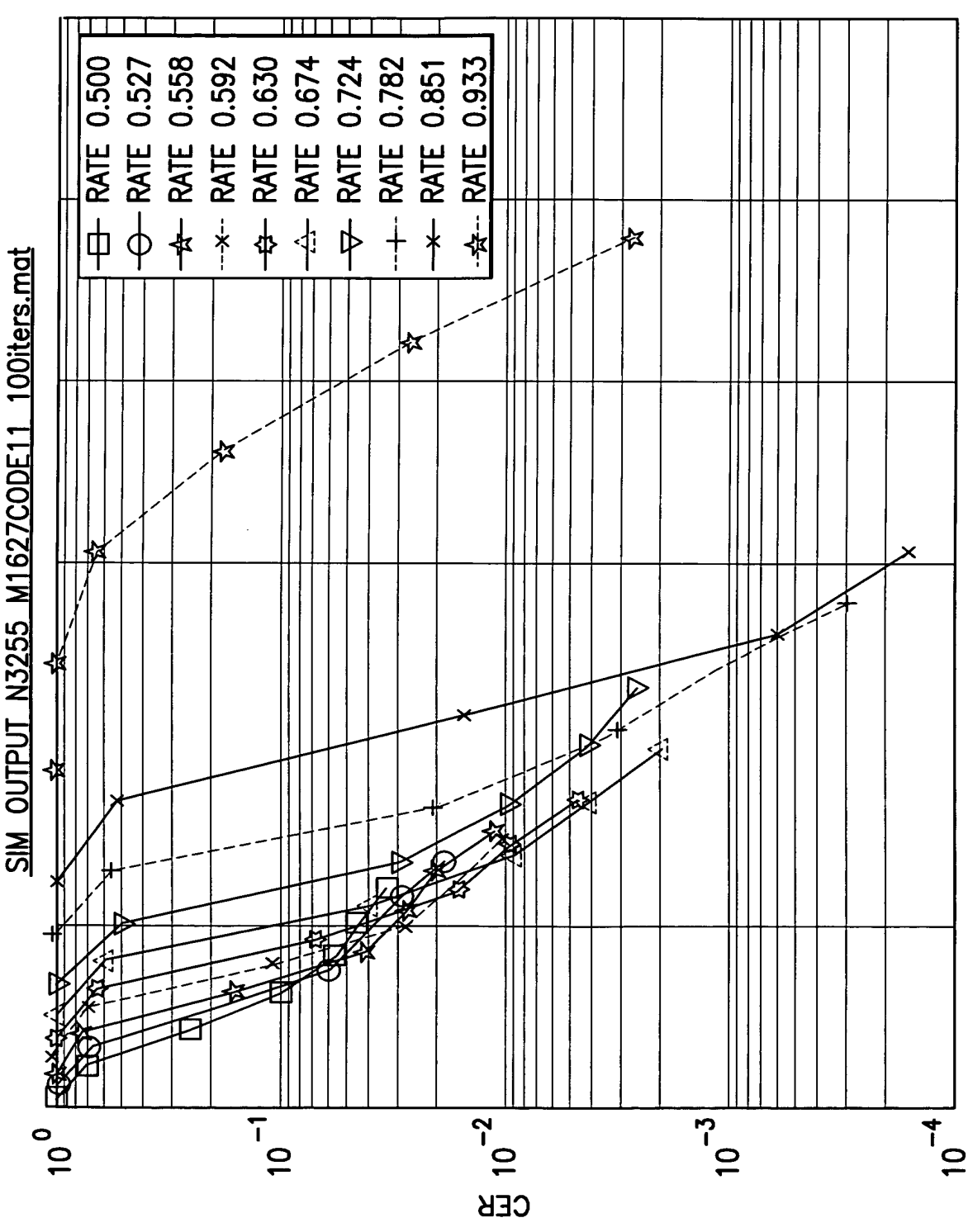
SIM_OUTPUT_N3255_M1627CODE11_100iters.mat
RATE 0.500
RATE 0.527
RATE 0.558
RATE 0.592
RATE 0.630
RATE 0.674
RATE 0.724
RATE 0.782
RATE 0.851
RATE 0.933
CER
Eb/No dB

FIG.14

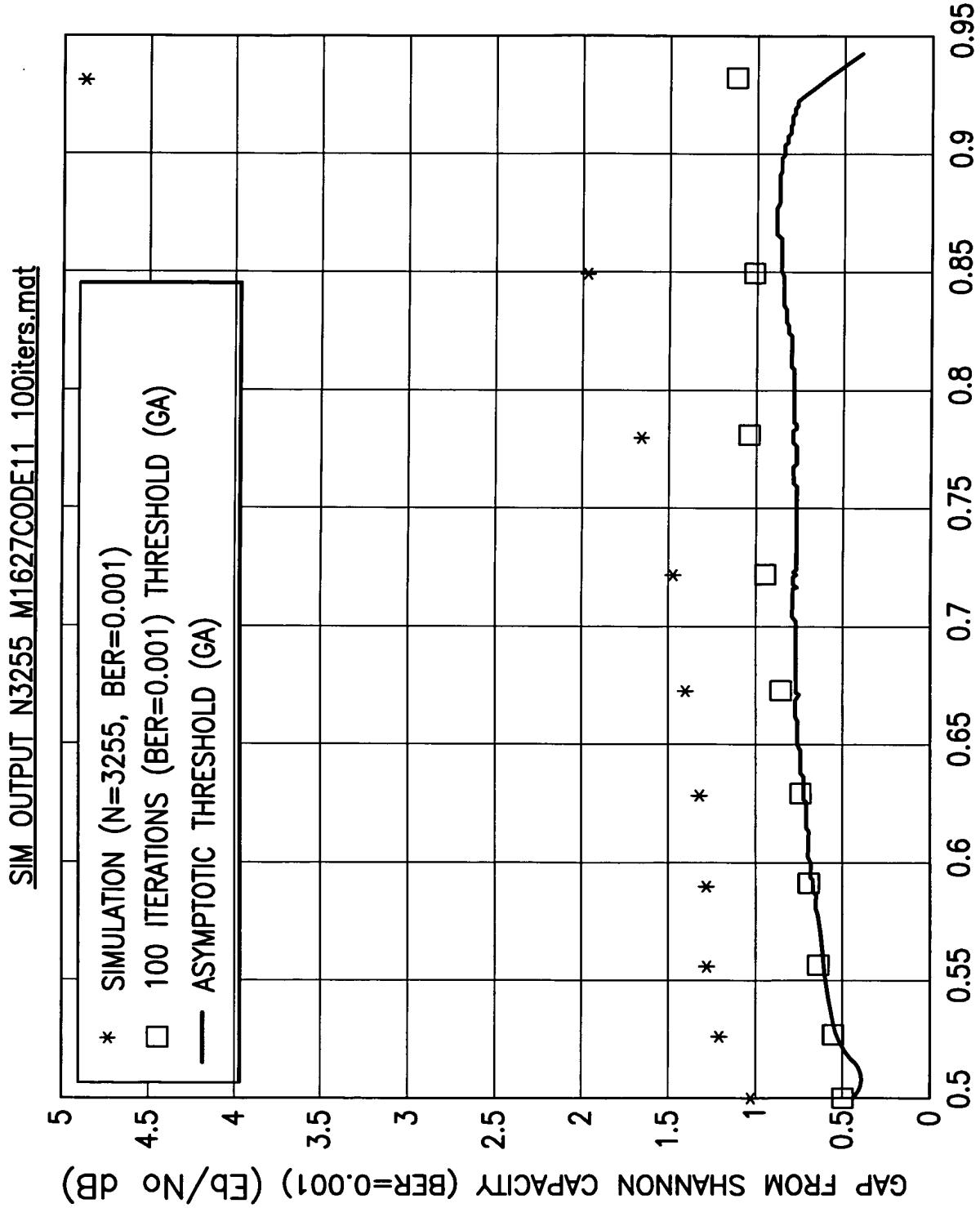
SIM_OUTPUT_N3255_M1627CODE11_100iters.mat
SIMULATION (N=3255, BER=0.001)
100 ITERATIONS (BER=0.001) THRESHOLD (GA)
ASYMPTOTIC THRESHOLD (GA)
GAP FROM SHANNON CAPACITY (BER=0.001) (Eb/No dB)
EFFECTIVE CODERATE
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.15

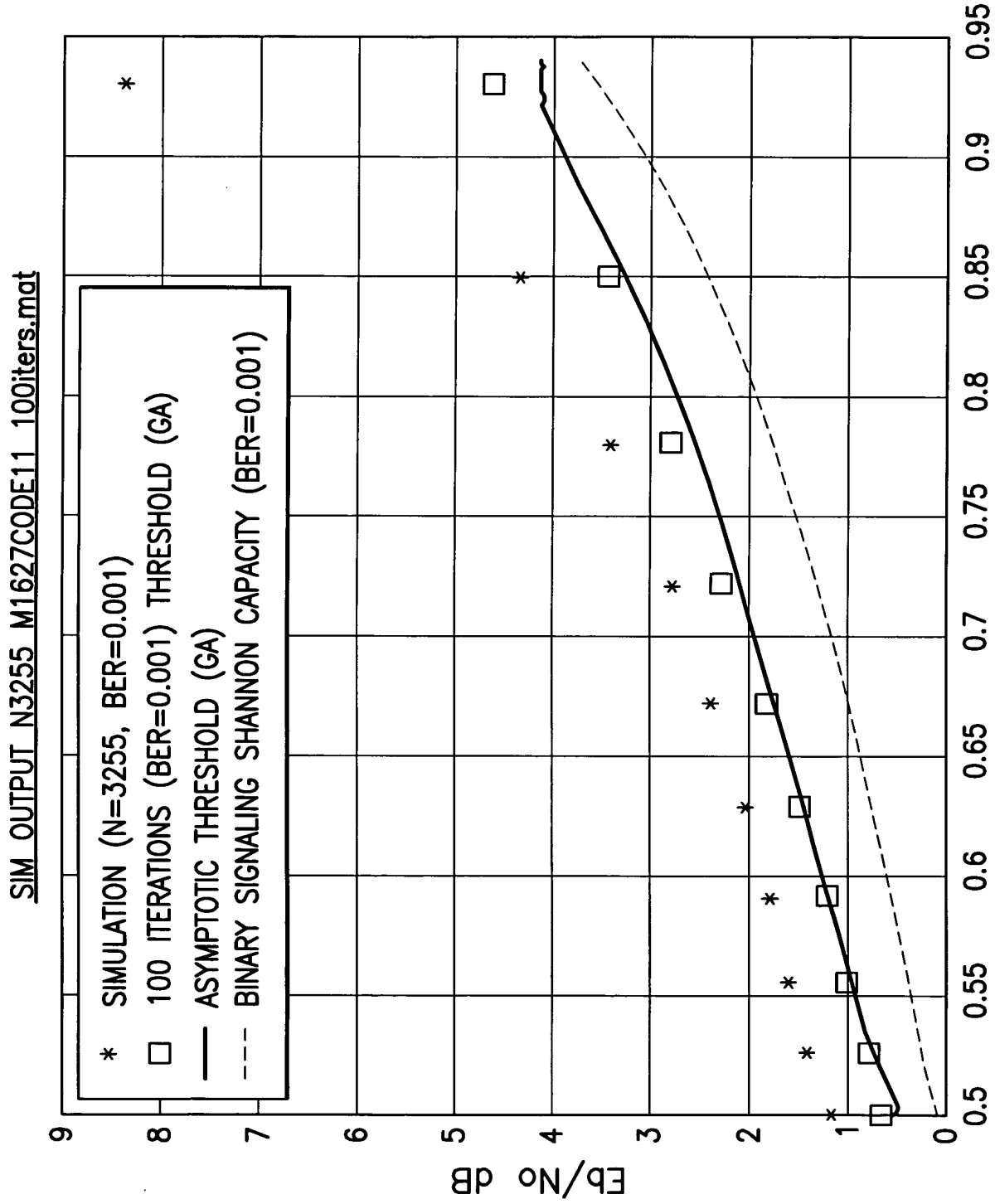
SIM_OUTPUT_N3255_M1627CODE11_100iters.mat
SIMULATION (N=3255, BER=0.001)
100 ITERATIONS (BER=0.001) THRESHOLD (GA)
ASYMPTOTIC THRESHOLD (GA)
BINARY SIGNALING SHANNON CAPACITY (BER=0.001)
Eb/No dB
EFFECTIVE CODERATE
0
1
2
3
4
5
6
7
8
9
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95

FIG.16